

**TABLE 1**  
**ESTIMATE OF THE EXTENT OF PETROLEUM PRODUCT IN SOIL**  
**AVERY LANDING SITE**  
**AVERY, IDAHO**

Property	Location	Type <sup>1</sup>	Date Performed	Comments and Descriptions on Investigation Log (Note: specific comments identified in quotations)	Approximate Depth to Groundwater <sup>2</sup> (feet)	Soil TPH Analytical Result/Depth <sup>3</sup> (mg/kg / feet)	Observation of Product in Well	Top of Product Contaminated Soil <sup>4</sup> (feet)	Bottom of Product Contaminated Soil <sup>4</sup> (feet)	Estimated Vertical Extent (Thickness) of Product Contaminated Soil <sup>5</sup> (feet)	Comments/Assumptions Concerning Vertical Extent of Contamination
Bentick	EMW-01	MW	4/16/07	Note: No comments concerning observations of contamination on the investigation log.	7.5	13,500 / 2	Not observed	NA	NA	0	The presence of petroleum hydrocarbon contamination not noted on boring log. However, the total petroleum hydrocarbon concentration (i.e., diesel-range + oil-range concentration) (TPH) measured in soil was greater than 10,000 mg/kg indicating likely release at this location. Assume that because product was not observed that remediation likely not required to address release.
Bentick	EMW-02	MW	4/17/07	"Moderate hydrocarbon odor" 5-7 ft "Hydrocarbon product. Sample blocked by cobble, low recovery" 7-9 ft "Not Sampled. Likely fractured rock." 9-16 ft	8	12,400 / 4	Not observed	4	9	5	Investigation log indicates product present at this location at 7-9 ft. Investigation log indicates samples not collected at depth greater than 9 ft; Therefore, vertical extent of contamination may not have been observed in boring. TPH concentration measured in soil was greater than 10,000 mg/kg at 4 ft indicating likely release at this depth. Assume that remediation is required to address likely release at 4 ft depth as well as deeper product. Therefore, assume that the vertical extent of soil requiring remediation is from 4-9 ft.
Potlatch	EMW-03	MW	4/17/07	Note: no comments concerning observations of contamination on the investigation log	11	40 / 11	Not observed	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified.
Potlatch	EMW-04	MW	4/17/07	"Sampler saturated; hydrocarbon sheen on groundwater. Insufficient recovery." 11-13 ft "Oily hydrocarbon product evident on downhole tools." "Insufficient recovery." 13-15 ft "Not sampled" 15-17 ft	11	1,050 / 3	"Thin Layer" "Probe coated in oil like product"	11	15	4.5	Investigation log indicates that sheen is present and sampler is saturated at depth of groundwater at 11-13 ft. Investigation log also indicates "Oily hydrocarbon product" is present on downhole tools from 13-15 ft. However, product on tools may be result of advancing tools through groundwater with product. Investigation log also indicates that sampling was not performed at depth of 15-17 ft. Therefore, vertical extent of contamination may not have been observed. Assume that, because product was noted in investigation log and well, that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations.
Potlatch	EMW-05	MW	4/18/07	"Strong hydrocarbon odor" 9-11 ft "Strong hydrocarbon odor" 11-13 ft "Strong hydrocarbon odor and rainbow sheen with drops of black product" 13-15 ft "Not Sampled. Gravel in drill cuttings." 15-19.5 ft	13	14,000 / 9	Not observed	9	15	6	Investigation log indicates sheen and product at 13-15 ft. However, investigation log also indicates samples not collected at between 15-19.5 ft. Therefore, vertical extent of contamination may not have been observed. TPH concentration measured in soil was greater than 10,000 mg/kg at 9 ft indicating likely release at this depth. Assume that remediation is required to address likely release at 9 ft depth as well as deeper product. Therefore, assume that the vertical extent of soil requiring remediation is from 9-15 ft.
Bentick	EMW-06	MW	4/18/07	"Hydrocarbon odor and sheen." 7-9 ft "Hydrocarbon odor and oily liquid present." 9-11 ft "Sample stained black with oily liquid. Insufficient recovery." 11-13 ft "Insufficient recovery" 13-15 ft "Cuttings show oily liquid. Easier drilling. Insufficient recovery" 15-17 ft "Difficult drilling. Insufficient recovery." 17-18.5 ft	11	10,500 / 9	"0.24 ft" "Probe coated in oil and diesel like product"	7	13	6	Investigation log indicates sheen and oily liquid between 7-13 ft. Boring log indicates insufficient recovery from 13-18 ft. TPH concentration measured in soil was greater than 10,000 mg/kg at 9 ft indicating likely release at this depth. Oil and diesel-like product noted in well. Therefore, assume that the vertical extent of soil requiring remediation is from 7-13 ft.
Potlatch	ESB-01	SB	4/18/07	"Hydrocarbon odor and sheen on groundwater" 8.8-9 ft. Note: Investigation log indicates bottom of boring at 9 ft.	8.8	3,150 / 7	NA	8.8	9	4.5	Comment on investigation log appears to indicate contamination at groundwater depth at 8.8-9 ft. However, investigation log indicates bottom of boring at 9 ft; Therefore, vertical extent of contamination may not have been observed. Assume that, because product was noted in investigation log, that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations.
Potlatch	ESB-02	SB	4/18/07	Note: Investigation log indicates three attempts at soil boring at this location. However, boring refusal was encountered at between 3 and 5 ft. "burnt wood fragments" 1-3 ft	NA	Not analyzed	NA	NA	NA	Not Completed	Investigation log indicates refusal at between 3 and 5 feet bgs. "burnt wood fragments" noted in soil matrix from 1-3 ft. Utilize information from other locations to evaluate vertical extent of contamination in area of ESB-02.

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Potlatch	ESB-03	SB	4/18/07	"Slight hydrocarbon odor. Insufficient recovery." 9-11 ft "Strong hydrocarbon odor. Product present. Insufficient recovery." 11-13 ft Note: Investigation log indicates bottom of boring at 13 ft	11.5	23,700 / 11	NA	11	13	4.5	Investigation log indicates product present at 11-13 ft. TPH concentration measured in soil was greater than 20,000 mg/kg at 11 ft indicating likely release at this depth. "Insufficient recovery" noted on investigation log for samples collected from 7-13 ft and bottom of boring at 13 ft. Therefore, vertical extent of contamination may not have been observed. Assume that, because product was noted in investigation log, that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations.
Bentick	ESB-04	SB	4/18/07	"Hydrocarbon odor and sheen" 3-5 ft "Hydrocarbon odor, no sheen" 5-7 ft "Strong hydrocarbon odor" 7-9 ft "Strong hydrocarbon odor, product present" bottom of boring Note: Investigation log indicates bottom of boring at 9 ft	9	7,000 / 3  20,000 / 7	NA	3  7	5  9	4.5	Investigation log indicates sheen present at 3-5 ft and therefore, remediation likely needed to address observed contamination at 3-5 ft. Investigation log indicates only hydrocarbon odor present from 5-9 ft. TPH concentration measured in soil was greater than 20,000 mg/kg at 7 ft indicating likely release at this depth. Investigation log appears to indicate product present at bottom of boring and that the bottom of boring was at 9 ft. Therefore, vertical extent of contamination may not have been observed. Assume that, because product was noted in investigation log, that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations.
Bentick	ESB-05	SB	4/19/07	Note: Sample not collected from surface to 3 ft. "Hydrocarbon odor and sheen" 3-5 ft. Note: No comments associated with sample from 5-7 ft. "Strong hydrocarbon odor and slight sheen" 7-9 ft. Note: No comments associated with sample from 9-11 ft. "Black oily liquid and strong hydrocarbon odor." 11-13 ft. Note: No comments associated with sample from 13-15 or 15-17 ft. "Hydrocarbon odor with no product due to high silt content." 17-19 ft. "No hydrocarbon sheen or odor." 19-23 ft.	10	4,600 / 15	NA	3	17	14	Appears that contamination descriptions provided in "COMMENTS" space in investigation log may describe multiple sample intervals. Therefore, assume contamination interval is from 3-17 ft based on comments.
FHA	ESB-06	SB	4/19/07	"Hydrocarbon odor" 7-9 ft Note: No comments associated with sample from 9-11 ft "Strong hydrocarbon odor. Oily liquid present." 11-13 ft Note: Investigation log indicates bottom of boring at 13 ft	12	10,900 / 11	NA	11	13	4.5	Investigation log indicates "oily liquid" present from 11-13 ft. However, investigation log indicates bottom of boring at 13 ft. Therefore, vertical extent of contamination may not have been observed. TPH concentration measured in soil was greater than 10,000 mg/kg at 11 ft indicating likely release at this depth. Assume that, because product was noted in investigation log, that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations.
FHA	ESB-07	SB	4/19/07	"Hydrocarbon odor." 5-7 ft Note: No comments associated with sample from 7-9 ft "Hydrocarbon odor and sheen." 9-11 ft "Black wood fragments possibly stained by hydrocarbons." 11-13 ft "Hydrocarbon odor and heavy sheen." 13-15 ft "Hydrocarbon odor and product present." 15-17 ft Note: Investigation log indicates bottom of boring at 17 ft	15	8,500 / 13	NA	9	17	8	Investigation log indicates sheen, heavy sheen, and product present between 9-17 ft. However, investigation log indicates bottom of boring at 17 ft. Therefore, vertical extent of contamination may not have been observed. Assume that the vertical extent of soil requiring remediation is from 9-17 ft.
Potlatch	TP-01	TP	8/27/09	"Black stained soil encountered at approximately 2' bgs." "Petroleum-like odor begins at approximately 10' bgs."	13.5	4,302 / 2.5 21,470 / 10.5 4,530 / 13.5	NA	NA	NA	0	Investigation log indicates stained soil and petroleum odor but does not identify that sheen or product is present. TPH concentration measured in soil was greater than 20,000 mg/kg at 10.5 ft indicating likely release at this depth. However, no sheen or product was identified. Assume that remedial excavation is not required at this location.
Potlatch	TP-02	TP	8/27/09	"No visibly impacted media."	13.5	277 / 2.5 ND / 8 ND / 13	NA	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified

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Potlatch	TP-03	TP	8/27/09	"Faint oil-like odor at approximately 11' bgs." "Oil-like staining at approximately 13' bgs." "Petroleum-like sheen and droplets of oil-like product observed on water table." "Groundwater encountered at approximately 13 ft bgs."	13.5	251 / 3.5 1,769 / 5 85 / 13.5	NA	13	13.5	4.5	Investigation log indicates petroleum-like sheen and droplets of oil-like product observed on groundwater. Groundwater was identified to be encountered at approximately 13 ft. However, investigation log indicates bottom of test pit at 13.5 ft; Therefore, vertical extent of contamination may not have been observed. A supplemental investigation was performed in 2011 to evaluate observations of sheen and droplets of oil in TP-03. A slight sheen in the form of a non-iridescent (i.e., not shiny, not multicolored), blocky, organic film was observed in several locations around TP-03. However, no petroleum product or oil was observed in any of the test pits. Petroleum hydrocarbon contamination at level that may require remediation was not identified as part of the supplemental investigation of TP-03.
Potlatch	TP-04	TP	8/27/09	"No impacted media observed."	8	171 / 2.5 53 / 6 ND / 8	NA	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified.
Potlatch	TP-05	TP	8/27/09	"No impacted media encountered."	11	ND / 3 1,864 / 10 1,327 / 11	NA	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified.
Potlatch	TP-05N	TP	8/28/09	Note: No comments concerning observations of contamination on investigation log.	Groundwater not observed	Not analyzed	NA	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified.
Potlatch	TP-06	TP	8/28/09	"Fuel-like odor encountered at approximately 8' bgs, increasing in intensity with depth." "Oily product globules encountered at approximately 17' bgs."	17	ND / 2.5 12,810 / 10 1,631 / 17	NA	NA	NA	0	Investigation log indicates oil product globules present at 17 ft. Investigation log indicates bottom of test pit at 17 ft; Therefore, vertical extent of contamination may not have been observed. TPH concentration measured in soil was greater than 10,000 mg/kg at 10 ft indicating likely release at this depth. Assume that remediation is required to address likely release at 10 ft depth as well as deeper product. Therefore, assume that the vertical extent of soil requiring remediation is from 10-17 ft.
Potlatch	TP-07	TP	8/28/09	"No impacted media observed."	18	45 / 2.5 205 / 10 ND / 18	NA	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified
Potlatch	TP-08	TP	8/28/09	"Impacted, stained soil observed from approximately 3' bgs to water table." "Strong petroleum-like odor below 13' bgs." "Petroleum-like globules of material floating on water table at approximately 14' bgs."	14	Not analyzed	NA	14	14	4.5	Investigation log indicates presence of petroleum-like globules of material floating on the water table at approximately 14 ft. Assume indicates presence of product. Investigation log indicates bottom of test pit at 15 ft; Therefore, vertical extent of contamination may not have been observed. Assume that, because product was noted in investigation log, that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations.
Potlatch	TP-09	TP	9/20/11	Slight "blocky sheen" observed at approximately 16 ft bgs.	16.5	Not analyzed	NA	NA	NA	0	A slight sheen in the form of a non-iridescent (i.e., not shiny, not multicolored), blocky, organic film was observed in sheen testing of soil from approximately 16 ft; However, no petroleum product or oil was observed in the test pit. Petroleum hydrocarbon contamination at level that may require remediation not identified.
Potlatch	TP-10	TP	9/20/11	Slight "Blocky-organic sheen" observed at approximately 15.5 ft bgs. Slight "Blocky sheen" observed at approximately 17 ft bgs.	16.5	Not analyzed	NA	NA	NA	0	A slight sheen in the form of a non-iridescent (i.e., not shiny, not multicolored), blocky, organic film was observed in sheen testing of soil from approximately 15.5 ft and 16 ft; However, no petroleum product or oil was observed in the test pit. Petroleum hydrocarbon contamination at level that may require remediation not identified.

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Potlatch	TP-11	TP	9/20/11	"Slight sheen in excavator bucket (ribbons)" observed at approximately 18 ft bgs.	18	224 / 18-19	NA	NA	NA	0	A slight sheen in the form of a non-iridescent (i.e., not shiny, not multicolored), ribbony, organic film was observed in in the excavator bucket from approximately 18 ft; However, no petroleum product or oil was observed in the test pit. Petroleum hydrocarbon contamination at level that may require remediation not identified.
Potlatch	TP-12	TP	9/20/11	Slight "Blocky sheen" observed on groundwater at approximately 15 ft and 16 ft bgs. "slight petroleum odor" encountered at 16 ft bgs.	16	Not analyzed	NA	NA	NA	0	A slight sheen in the form of a non-iridescent (i.e., not shiny, not multicolored), blocky, organic film was observed in sheen testing of soil from approximately 15 ft and 16 ft; However, no petroleum product or oil was observed in the test pit. Petroleum hydrocarbon contamination at level that may require remediation not identified.
Potlatch	TP-13	TP	9/20/11	Note: No comments concerning observations of contamination on the investigation log.	15.5	Not analyzed	NA	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified
Potlatch	TP-14	TP	9/21/11	"petroleum odor (heavy end), black viscous petroleum throughout pore space" and "Blocky sheen" encountered at approximately 9 ft bgs. "petroleum odor (lighter end)" noted at approximately 12 ft bgs.	12	Not analyzed	NA	9	12	4.5	Investigation log indicates presence of black viscous petroleum product throughout pore space at approximately 9 feet bgs. Assume indicates presence of product. Investigation log indicates product not as viscous at 12 feet bgs; Investigation log indicates bottom of test pit at 12 feet bgs; Therefore, vertical extent of contamination may not have been observed. Assume that, because product was noted in investigation log, that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations.
Potlatch	TP-15	TP	9/21/11	Medium sheen and "petroleum odor (light end)" encountered at approximately 9 to 11 ft bgs.	11	820 / 9-10	NA	9	11	4.5	Investigation log indicates medium sheen and petroleum odor at approximately 9 to 11 feet bgs. Assume indicates presence of product. Investigation log indicates bottom of test pit at 11 feet bgs; Therefore, vertical extent of contamination may not have been observed. Assume that, because product was noted in investigation log, that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations.
Potlatch	TP-16	TP	9/21/11	Slight "Very light ribbons to blocky sheen" observed at approximately 11 feet bgs.	12	Not analyzed	NA	NA	NA	0	A slight sheen in the form of a non-iridescent (i.e., not shiny, not multicolored), light ribbons to blocky, organic film was observed in sheen testing of soil from approximately 15 ft and 16 ft; However, no petroleum product or oil was observed in the test pit. Petroleum hydrocarbon contamination at level that may require remediation not identified.
Potlatch	TP-17	TP	9/21/11	Slight "blocky sheen" observed at approximately 12 ft bgs.	13	ND / 12-13	NA	NA	NA	0	A slight sheen in the form of a non-iridescent (i.e., not shiny, not multicolored), blocky, organic film was observed in sheen testing of soil from approximately 12 ft; However, no petroleum product or oil was observed in the test pit. Petroleum hydrocarbon contamination at level that may require remediation not identified.

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Potlatch	TP-18	TP	9/21/11	Note: No comments concerning observations of contamination on the investigation log.	9.5	33.5 / 8-9	NA	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified
Potlatch	TP-19	TP	9/21/11	Note: No comments concerning observations of contamination on the investigation log.	10	ND / 10-11	NA	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified
Bentick	TS-01	TP	8/25/09	"** Black wedge of contaminated soil at approximately 4 feet" 2.0-8.0 ft. "** Soil is oil coated, increasing with depth" 11.0-17.5 ft. "Strong petroleum-like odor on samples beginning at approximately 10 feet bgs." "Oil coated soil encountered at 14', increasing in amount of oily product with depth." "Approximately 3" diameter metal pipe encountered at approximately 2'."	17.5	1,026 / 12 (composite sample of TS-01 and TS-04)	NA	11	17.5	6.5	Investigation log indicates soil is oil coated and increases with depth starting at 11 ft and ending at 17.5 ft. Assume indicates presence of product from 11-17.5 ft. Investigation log indicates bottom of test pit at 17.5 ft; Therefore, vertical extent of contamination may not have been observed. Assume that soil requiring remediation extends from 11-17.5 ft.
Bentick	TS-02	TP	8/25/09	"** Soil coloring appeared to indicate petroleum staining" Note: The asterisk associated with the notation above is attached to the description for 12.0-20.0 ft. "Wedge of black stained soil at 1.5'-2'bgs." "Strong petroleum-like odor on samples below 8.5 ft bgs." "Approximately 12" diameter pipe encountered at approximately 6.5'."	19	3,210 /12 (composite sample)	NA	NA	NA	Not Used	Petroleum hydrocarbon contamination at level that may require remediation not identified. However, characterization of soil provided in TS-02 not consistent with descriptions of soil provided in other investigation logs. Therefore, utilize descriptions of soil contamination from adjacent locations to characterize area encompassing TS-02.
Bentick	TS-03	TP	8/25/09	"** Soil appeared stained" 3.5-9.0 ft "** Soil color appeared stained" 12.5-20 ft "Soil appeared impacted from 3' bgs to bottom of test pit." "Strong petroleum-like odor on samples below 10.5 ft bgs." "Gravel appeared saturated with an oily product."	18	3,210 /12 (composite sample)	NA	12.5	20	7.5	Investigation log indicates gravel appears saturated with oily product. Investigation log indicates that gravel is present from 12-20 ft. Assume indicates presence of product from 12.5-20 ft. Investigation log indicates bottom of test pit at 20 ft; Therefore, vertical extent of contamination may not have been observed. Assume that soil requiring remediation extends from 12.5-20 ft.
Potlatch	TS-04	TP	8/26/09	"Oil-like odor beginning at approximately 7.5' bgs." "Soil appeared impacted below 12' bgs." "Clay pipe encountered at approximately 8 ft bgs."	16	1,026 / 12 (composite sample of TS-01 and TS-04)	NA	15.9	16	Not Used	Petroleum hydrocarbon contamination at level that may require remediation not identified. However, characterization of soil provided in TS-04 not consistent with descriptions of soil provided in other investigation logs. Therefore, utilize descriptions of soil contamination from adjacent locations to characterize area encompassing TS-04.
Potlatch	TS-05	TP	8/26/09	"Approximately 3" diameter PVC pipe encountered at approximately 7ft." "Tree trunks, railroad ties and wood beams encountered at approximately 10 ft bgs."	Not recorded, however "wet" at 13.5-16	3,840 / 12 (composite sample)	NA	NA	NA	Not Used	Petroleum hydrocarbon contamination at level that may require remediation not identified. However, characterization of soil provided in TS-05 not consistent with descriptions of soil provided in other investigation logs. Therefore, utilize descriptions of soil contamination from adjacent locations to characterize area encompassing TS-05.
Potlatch	TS-06	TP	8/26/09	"Impacted material and stained soil beginning at 12' bgs." "Heavy oil staining at approximately 14'bgs." "Oily product appeared very viscous. Some free product visible on cobbles and boulders."	20	3,840 / 12 (composite sample)	NA	14	20	4.5	Investigation log indicates presence of oily product / free product on cobbles and boulders. However, investigation log does not identify depth of soil with product. Investigation log indicates bottom of test pit at 20 ft; Assume that, because product was noted in investigation log, that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations.

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FHA	BH-1	SB	8/28/09	Note: Sheen observed in samples from 7.5-9.0 and 15-16.5 ft. "LNAPL observed in soil at 13 ft bgs." "Small pockets of LNAPL in sample (2cm)." "Petroleum-like sheen on water surface."	16	387 / surface 201 / 7.5 358 / 16	NA	7.5	16.5	9	3 SPT samples were collected from the HSA boring (0-1.5 ft; 7.5-9 ft; 15-16.5 ft) and the boring was completed at 20 feet bgs. Notes concerning sheen indicate that sheen was observed in sample from 7.5-9 and 15-16.5 ft. It is not clear how the determination was made that "LNAPL observed in soil at 13 ft bgs" because this interval was not sampled. It is not clear what the bottom depth of product containing soil is because the interval from 16.5 - 20 ft was not sampled. Assume extent of contamination from first indication of sheen (i.e., 7.5 ft) to bottom of last sample interval (i.e., 16.5 ft).
FHA	BH-2	SB	8/28/09	Note: sheen identified in samples from 9.5-11.0 and 15-16.5 ft. "Petroleum-like product oozing from sand" 15-16.5 ft	15	60 / surface ND / 7.5 71 / 15	NA	9.5	16.5	7	5 SPT samples were collected from the HSA boring (0-1.5 ft; 5-6.5 ft; 7.5-9 ft; 10-11.5 ft; 15-16.5 ft) and the boring was completed at 20 ft. Notes concerning sheen indicate that sheen was observed in sample from 9.5-11 and 15-16.5 ft. It is not clear what the bottom depth of the contaminated soil is because the interval from 16.5 - 20 ft was not sampled. Assume extent of contamination from first indication of sheen (i.e., 9.5 ft) to bottom of last sample interval (i.e., 16.5 ft).
FHA	BH-3	SB	8/27/09	Note: Sheen identified in samples from 7.5-9.0 and 10-11.5 ft. "Dark, fine grained material at 6-7 ft bgs." "Petroleum-like odor and sheen present." 10-11.5 ft "Petroleum-like floating on ground water"	15	91 / surface 50 / 7.5 946 / 15	NA	7.5	15	7.5	4 SPT samples were collected from this HSA boring (0-1.5 ft; 5-6.5 ft; 7.5-9 ft; 10-11.5 ft) and the boring was completed at 15.5 ft. Notes concerning sheen indicate that sheen was observed in sample from 7.5-9 and 10-11.5 ft. It is not clear how the determination was made that "petroleum like" material was floating on groundwater because this interval was not sampled. It is not clear what the bottom depth of contaminated soil is because the boring was completed at 15.5 ft. Assume extent of contamination from first indication of sheen (i.e., 7.5 ft) to bottom of the boring (i.e., 15.5 ft) based on observation of petroleum on groundwater at 15 ft.
FHA	BH-4	SB	8/27/09	Note: sheen identified in samples from 7.5-9.0 and 14.5-15.0 ft. "At about 8' dark bluish black staining, petroleum-like odor and sheen observed." "Petroleum-like odor and sheen present" 14.5-15 ft.	14.5	69 / surface 3,740 / 7.5 19 / 15	NA	7.5	15	7.5	3 SPT samples were collected from the HSA boring (0-1.5 ft; 7.5-9 ft; 14.5-15.0 ft) and the boring was completed at 15 feet bgs. Notes concerning sheen indicate that sheen was observed in sample from 7.5-9.0 and 14.5-15.0 ft. It is not clear how the determination was made that "dark bluish black staining" observed in soil at 8 ft because this interval was not sampled. It is not clear what the bottom depth of impacted soil is because the boring was completed at 15 ft. Assume extent of contamination from first indication of sheen (i.e., 7.5 ft) to bottom of last sample interval / boring (i.e., 15 ft) based on presence of sheen.
FHA	BH-5	SB	8/27/09	Note: sheen identified in samples from 5.0-6.5 and 15.0-16.5 ft. "Petroleum-like odor and sheen present." 5-6.5 ft. "Petroleum-like odor present" 7.5-10 ft. "Petroleum-like odor and sheen present" 10-15 ft. "LNAPL observed on some gravel. Sheen on water surface" 15-16.5 ft.	10	231 / surface 1,763 / 7.5 279 / 15	NA	5	17	12	3 SPT samples were collected from the HSA boring (0-1.5 ft; 5-6.5 ft; 15-16.5 ft) and the boring was completed at 17 feet. Notes concerning sheen indicate that sheen was observed in sample from 5.0-6.5 and 15.0-16.5 ft. Descriptions indicate that sheen or LNAPL are present from 5.0 to 17.0 ft.
Potlatch	GA-1	MW	8/26/09	Note: Sheen identified in sample from 15.0-16.5 ft. "LNAPL and sheen present" 15-16.5 ft.	10	110 / 21	0.01 ft "Probe coated in oil like product"	15	16.5	4.5	4 SPT samples were collected from the HSA boring (0-1.5 ft; 5-6.5 ft; 7.5-9 ft; 15-16.5 ft) and the boring was completed at 21 ft. Investigation log indicates that sheen and LNAPL observed in sample from 15.0-16.5 ft. it is not clear what the bottom depth of soil with product is based on the descriptions in the investigation log. Assume that, because product was noted in investigation log and in well, that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations.
Potlatch	GA-2	MW	8/26/09	Note: no comments concerning observations of contamination on investigation log	10	Not analyzed	Not observed	NA	NA	0	Note that sheen notes contain numbers in them which is inconsistent with previous logs that include "N", "Y", or "-".



Property	Location	Type <sup>1</sup>	Date Performed	Comments and Descriptions on Investigation Log (Note: specific comments identified in quotations)	Approximate Depth to Groundwater <sup>2</sup> (feet)	Soil TPH Analytical Result/Depth <sup>3</sup> (mg/kg / feet)	Observation of Product in Well	Top of Product Contaminated Soil <sup>4</sup> (feet)	Bottom of Product Contaminated Soil <sup>4</sup> (feet)	Estimated Vertical Extent (Thickness) of Product Contaminated Soil <sup>5</sup> (feet)	Comments/Assumptions Concerning Vertical Extent of Contamination
Potlatch	GA-3	MW	8/26/09	"Sheen present" (20-21.5 foot interval)	18.5	94 / 21	Not observed	NA	NA	0	7 SPT samples were collected from the HSA boring (0-1.5 ft; 5-6.5 ft; 7.5-9 ft; 10-11.5 ft; 15-16.5 ft; 20-21.5 ft; 25-26.5 ft) and the boring was completed at 26.5 feet. Notes concerning sheen indicate that sheen was observed in samples from 15.0-16.5 and 20-21.5 ft. A supplemental investigation was performed in 2011 to evaluate observations of sheen at GA-3. A slight sheen in the form of a non-iridescent (i.e., not shiny, not multicolored), blocky, organic film was observed in several locations around GA-3. However, no petroleum product or oil was observed in any of the test pits. Petroleum hydrocarbon contamination at level that may require remediation was not identified as part of the supplemental investigation of GA-3.
Potlatch	GA-4	MW	8/25/09	Note: no comments concerning observations of contamination on investigation log.	10	Not analyzed	Not observed	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified
Potlatch	HC-1	MW	8/23/89	Boring advanced with air rotary equipment. No samples collected during drilling.	12	Not analyzed	Not observed	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified
Potlatch	HC-1R	MW	10/26/93	Note: No comments concerning observations of contamination on the investigation log.	10	Not analyzed	Not observed	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified
Bentick	HC-4	MW	8/22/89	Boring advanced with air rotary equipment. No samples collected during drilling.	11.20	Not analyzed	1.24 ft	NA	NA	4.5	No information concerning observation of soil conditions presented on investigation log because air rotary equipment used to advance boring. Assume that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations and presence of product in well.
Bentick	HC-5	MW	10/26/93	"Moderate to strong hydrocarbon-like odor from 5 to 10 feet."	11.5	Not analyzed	Not observed	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified.
Bentick	MW-5	MW	Not identified	Investigation log not available.	7.89	Not analyzed	Not observed	NA	NA	0	Petroleum hydrocarbon contamination at level that may require remediation not identified.
FHA	MW-11	MW	Not identified	Investigation log not available.	NM	Not analyzed	4.15 ft "Probe coated in oil like product"	NA	NA	4.5	No information concerning observations of soil conditions. Assume that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations and presence of product in well.
Potlatch	EW-1	EW	1994	investigation log not identified.	NA	Not Identified	0.0-0.02 ft	NA	NA	4.5	No information concerning observations of soil conditions. Assume that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations and presence of product in well.
Potlatch	EW-2	EW	1994	investigation log not identified.	NA	Not Identified	0.0-.79 ft	NA	NA	4.5	No information concerning observations of soil conditions. Assume that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations and presence of product in well.
Bentick	EW-3	EW	1994	investigation log not identified.	NA	Not Identified	0.0-0.95 ft	NA	NA	4.5	No information concerning observations of soil conditions. Assume that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations and presence of product in well.
Bentick	EW-4	EW	1994	investigation log not identified.	NA	Not Identified	0.0-0.82 ft	NA	NA	4.5	No information concerning observations of soil conditions. Assume that vertical extent of contamination is 4.5 ft at a minimum due to seasonal groundwater elevation fluctuations and presence of product in well.

Notes:

- <sup>1</sup> Type of investigation location that includes monitoring well, soil boring, test pit, and extraction well.
- <sup>2</sup> Approximate depth to groundwater in feet below ground surface identified on the investigation log.
- <sup>3</sup> The total protroleum hydrocarbon (TPH) result is the sum of diesel- and oil-range petroleum hydrocarbon concentrations in mg/kg for each sample collected from the investigation location. Non-detects were treated as zero. The depth of each sample is provided in feet below ground surface.
- <sup>4</sup> The top and bottom of product contaminated soil that are presented are based on comments and descriptions provided in the investigation logs and the results of diesel- and oil-range petroleum hydrocarbon analyses.
- <sup>5</sup> The estimated vertical extent of product contaminated soil is based on the comments and descriptions provided on the investigation logs, results of petroleum hydrocarbon analyses on soil samples or an estimate of the smear zone. The smear zone is the area where product is present and fluctuations in water elevations act to spread the product through the soil between the high and low water elevations. The change in groundwater elevations at selected wells located across the site between October 1994 and June 2000 resulting from quarterly monitoring were used to estimate the groundwater level fluctuation and smear zone at the Site. The groundwater fluctuation and vertical extent of the smear zone were estimated to be 4.5 feet. When product was identified to be present at an investigation location in soil or groundwater but there was not adequate information to identify the vertical extent, it was assumed that the vertical extent was 4.5 feet based on the estimate of the smear zone.
- MW= monitoring well

SB = Soil boring

TP = Test Pit

GW = Groundwater

15-17 = 15 to 17 feet below ground surface (bgs)

NA = Not Applicable

NM = Not measured

ND = Not detected
- EECA = Engineering Evaluation/Cost Analysis

TPH = Total Petroleum Hydrocarbons

LNAPL = Low molecular weight nonaqueaus phase liquid

SPT = Standard Penetration Test

NE = Not encountered

FHA = Federal Highway Administration

HSA = Hollow Stem Auger